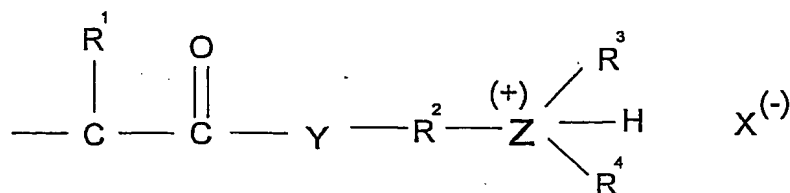


Claims

1. Use in an antifouling coating composition of a polymer comprising one or more salts of amine-functional groups and/or one or more salts of phosphine-functional groups bound to the backbone of the polymer consisting of or comprising a group of formula:



wherein

Y is O or NH, Z is N or P, R¹ is a hydrogen atom or a C₁-C₄ alkyl group, preferably hydrogen or a C₁-C₂ alkyl group,

R² is a C₂-C₁₂ divalent hydrocarbon group, preferably a C₂-C₈ divalent hydrocarbon group, more preferably a C₂-C₄ divalent hydrocarbon group.

R³ and R⁴ independently represent a hydrogen atom or an alkyl group, preferably a C₁-C₆ alkyl group, more preferably a methyl, or an optionally substituted phenyl group,

X is the anionic residue of an acid having an aliphatic, aromatic, or alkaryl hydrocarbon group comprising at least 5 carbon atoms;

optionally, the polymer further comprises one or more quaternary ammonium- and/or quaternary phosphonium-functional groups that are neutralised by counter-ions, said counter ions consisting of the anionic residue of an acid having an aliphatic, aromatic, or alkaryl hydrocarbon group comprising 6 or more carbon atoms.

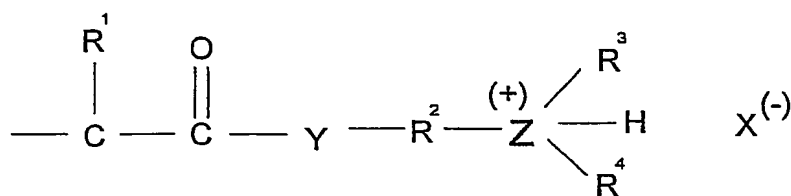
2. Use according to claim 1, characterised in that the polymer, or a mixture of the polymer with other polymers comprising one or more salts of amine-functional groups and/or one or more salts of phosphine-functional groups and/or one or more quaternary ammonium and/or one or more quaternary

phosphonium-functional groups bound to the backbone of the polymer, comprises a total amount of salt-comprising plus quaternary functional monomer building blocks of 5 to 40 mole%, calculated on the total amount of monomers of which the polymer or the polymer mixture has been built.

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3. An antifouling coating composition comprising a polymer comprising one or more salts of amine-functional groups and/or one or more salts of phosphine-functional groups bound to the backbone of the polymer consisting of or comprising a group of formula:

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wherein

Y is O or NH, Z is N or P, R¹ is a hydrogen atom or a C₁-C₄ alkyl group, preferably hydrogen or a C₁-C₂ alkyl group,

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R² is a C₂-C₁₂ divalent hydrocarbon group, preferably a C₂-C₈ divalent hydrocarbon group, more preferably a C₂-C₄ divalent hydrocarbon group.

R³ and R⁴ independently represent a hydrogen atom or an alkyl group, preferably a C₁-C₆ alkyl group, more preferably a methyl, or an optionally substituted phenyl group,

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X is the anionic residue of an acid having an aliphatic, aromatic, or alkaryl hydrocarbon group comprising at least 5 carbon atoms;

optionally, the polymer further comprises one or more quaternary ammonium- and/or quaternary phosphonium-functional groups that are neutralised by counter-ions, said counter ions consisting of the anionic residue of an acid having an aliphatic, aromatic, or alkaryl hydrocarbon group comprising 6 or more carbon atoms.

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4. A coating composition according to claim 3, characterised in that the anionic residue comprises 5 to 50 carbon atoms.
5. A coating composition according to claim 3 or 4, characterised in that the
5 polymer, or a mixture of the polymer with other polymers present in the composition that comprise one or more salts of amine-functional groups and/or one or more salts of phosphine-functional groups and/or one or more quaternary ammonium and/or one or more quaternary phosphonium-functional groups bound to the backbone of the polymer, comprises a total
10 amount of salt-comprising plus quaternary functional monomer building blocks of 5 to 40 mole%, calculated on the total amount of monomers of which the polymer or the polymer mixture has been built.
6. A coating composition according to any one of claims 3 to 5, characterised
15 in that the coating composition additionally comprises a rosin material as binder material.
7. A coating composition according to claim 6, characterised in that the
20 coating composition has a binder comprising a blend of a rosin material and an auxiliary film-forming resin in a weight ratio of 20:80 to 95:5, the auxiliary film-forming resin comprising 20-100% by weight of a film-forming polymer (A), which is the salt group-comprising polymer having salts of amine-functional groups and/or salts of phosphine-functional groups bound to the backbone of the polymer, said salts comprising as counter-ion the anionic
25 residue of an acid having an aliphatic, aromatic, or alkaryl hydrocarbon group comprising at least 5 carbon atoms, and 80-20% of a non-hydrolysing, water-insoluble film-forming polymer (B).
8. A coating composition according to claim 7, characterised in that the binder
30 comprises a blend of the rosin material and the auxiliary film-forming resin in a weight ratio of 55:45 to 80:20.



9. A coating composition according to claim 7 or 8, characterised in that the auxiliary film-forming resin comprises 30-90% by weight of the film-forming polymer (A) capable of hydrolysing or dissociating to a polymer soluble in sea water and 70-10% by weight of the non-hydrolysing, water-insoluble film-forming polymer (B).
10. A coating composition according to any one of claims 3 to 9, characterised in that the non-hydrolysing, water-insoluble film-forming polymer (B) is an acrylate ester polymer or a vinyl ether polymer.
11. A coating composition according to any one of claims 3 to 10, characterised in that the binder includes a non-polymeric plasticiser present at up to 50% by weight based on the total binder polymer.
12. Use of a coating composition according to any one of claims 3 to 11 for protection of man-made structures immersed in water such as boat hulls, buoys, drilling platforms, oil production rigs, and pipes.